CLAIMS

What is claimed is:

1.   A method for an access point to provide immediate delivery of low-latency

5   multicast/broadcast data packets to at least one of a plurality of virtual local area networks, the

steps comprising:

monitoring, at the access point, all virtual local area networks comprising at least

one station associated with the access point;

determining, on at least one of the plurality of virtual local area networks, all

10   associated stations supporting low-latency data transmission;

identifying the at least one virtual local area network having all associated stations

supporting low-latency data transmission; and

transmitting low-latency multicast/broadcast data packets immediately to the at

least one virtual local area network having all associated stations supporting low-latency data

15   transmission.

2.   The method of claim 1, wherein the access point is an 802.11 access point.

3.   The method of claim 1, wherein each station supporting low-latency data

20   transmission is in 802.11 constantly active operation.

4.   The method of claim 1, further comprising the step of identifying at least one

virtual local area network having at least one associated station supporting high-latency data

packets

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5.   The method of claim 4, wherein each high-latency associated station is in 802.11

power-save protocol operation.   `

6.   The method of claim 5, further comprising the step of buffering the

30 . multicast/broadcast data packets for the at least one virtual local area network having the at least

one associated station in power-save protocol operation.

7.   The method of claim 6, further comprising the step of transmitting the buffered multicast/broadcast data packets with a data traffic indicator mark.

8.   The method of claim 1, wherein the associated station is a portable personal computer.

9.   The method of claim 1, wherein the associated station is a personal data assistant.

10.   In a network comprising at least one access point, a plurality of virtual local area networks and a plurality of associated stations, a system for automatically optimizing delivery of low-latency multicast/broadcast data packets over at least one of the virtual local area networks, comprising

        means adapted for monitoring, at the access point, all virtual local area networks comprising at least one station associated with the access point;

        means adapted for determining, on at least one of the plurality of virtual local area networks, all associated stations supporting low-latency data transmission;

        means adapted for identifying the at least one virtual local area network having all associated stations supporting low-latency data transmission; and

        means adapted for transmitting low-latency multicast/broadcast data packets immediately to the at least one virtual local area network having all associated stations supporting low-latency data transmission.

11.   The system of claim 10 wherein the access point is an 802.11 access point.

12.   The system of claim 10 wherein each low-latency associated station is in 802.11 constantly active operation.

13.   The system of claim 10, further comprising means adapted for identifying at least one virtual local area network having at least one associated station supporting high-latency data packets.

14. The system of claim 13, wherein each high-latency associated station is in 802.11 power-save protocol operation.

5   15. The system of claim 14, further comprising means adapted for buffering the multicast/broadcast data packets for the at least one virtual local area network having the at least one associated station in power-save protocol operation.

16. The system of claim 15, further comprising means adapted for transmitting the
10   buffered multicast/broadcast data packets with a data traffic indicator mark.

17. The system of claim 10, wherein the associated station is a portable personal computer.

15   18. The system of claim 10, wherein the associated station is a personal data assistant.

19. A computer program product having a computer readable medium having computer program logic recorded thereon for performing a computer implemented method for an access point to provide immediate delivery of low-latency data packets to at least one of a
20   plurality of virtual local area networks, the steps comprising:

      monitoring, at the access point, all virtual local area networks comprising at least one station associated with the access point;

      determining, on at least one of the plurality of virtual local area networks, all associated stations supporting low-latency data transmission;

25   identifying the at least one virtual local area network having all associated stations supporting low-latency data transmission; and

      transmitting low-latency multicast/broadcast data packets immediately to the at least one virtual local area network having all associated stations supporting low-latency data transmission.

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20.   The computer implemented method of claim 19, wherein the access point is an 802.11 access point.

21.   The computer implemented method of claim 19, wherein each low-latency data transmission supporting station is in 802.11 constantly active operation.

22.   The computer implemented method of claim 19, further comprising the step of identifying at least one virtual local area network having at least one associated station supporting high-latency data packets

23.   The computer implemented method of claim 22, wherein each high-latency associated station is in 802.11 power-save protocol operation.

24.   The computer implemented method of claim 23, further comprising the step of buffering the multicast/broadcast data packets for the at least one virtual local area network having the at least one associated station in power-save protocol operation.

25.   The computer implemented method of claim 24, further comprising the step of transmitting the buffered multicast/broadcast data packets with a data traffic indicator mark.

26.   The computer implemented method of claim 19, wherein the associated station is a portable personal computer.

27.   The computer implemented method of claim 19, wherein the associated station is a personal data assistant.